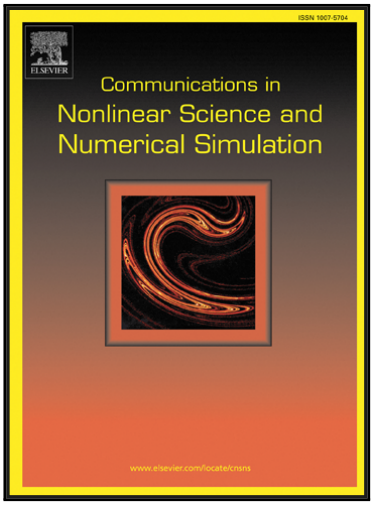

An iterative kernel based method for fourth order nonlinear equation with nonlinear boundary condition

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Highlights

- The standard reproducing kernel methods can not be used directly to solve boundary value problems with nonlinear boundary conditions and with no knowledge about existence and uniqueness of solution, since there is no method of obtaining reproducing kernel satisfying nonlinear boundary conditions. In this paper an iterative method using a combination of reproducing kernel Hilbert space method and a shooting-like technique is proposed, for solving the mentioned problems.
- An error estimation is given for the reproducing kernel method to solve nonlinear boundary value problems probably for the first time.
- The combined method provide an analytical approximate solution in the form of a convergent series with easily computable components.
- The method can be easily applied for higher order boundary value problems with nonlinear boundary conditions.